Listing of Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Claims 42-75, which were presented in an un-entered amendment submitted December 22, 2006, have been renumbered claims 1-34 in accordance with a Notice of Non-Compliant Amendment issued January 11, 2007. In their December 22, 2006 amendment, Applicants failed to indicate the prior cancellation of claims 1-41. Consequently, as asserted in the Notice of Non-Compliant Amendment issued January 11, 2007: "D. The claims of this amendment paper have not been presented in ascending numerical order. E. Other: Please number claims from 1-34."

In renumbering the claims and for the convenience of the Examiner, claims 1-34 correspond one for one identically with claims 42-75 and are indicated with a comment such as "currently amended" so that the Examiner may appreciate the status of the indicated claim. Claims 42-75 have not been otherwise amended than to renumber them as claims 1-34 and to correct claim dependencies and thus are believed to comply with the requirement of the Notice of Non-Compliant Amendment issued January 11, 2007. Correction of claim dependency during renumbering is not considered an amendment warranting the indication of a change of status such as from "previously presented" to "currently amended."

Claim 1. (currently amended) A method of partitioning data records in a computer into groups, comprising the steps of:

    (a)   defining a function of a distribution of ~~the~~ values of a designated variable associated with the data records, wherein the function comprises a combination of measures, one of the measures being weighted by a weighting factor;

    (b)   partitioning the values of ~~a~~ the designated variable into two or more groups, wherein ~~the~~ a value of the function is determined by applying an optimization procedure; and

    (c)   assigning ~~each~~ a data record to a group according to the ~~value~~ values of the designated variable.

Claim 2. (previously presented)   A method as recited in claim ~~42~~ 1 wherein said partitioning comprises partitioning of data records into groups of approximately equal size.

Claim 3. (previously presented)   A method as recited in claim ~~42~~ 1 further comprising the step of selecting a partition from many computed solutions yielding acceptable performance.

Claim 4. (previously presented)   A method as recited in claim ~~42~~ 1 wherein said optimization procedure results in an optimal assignment.

Claim 5. (previously presented)   A method as recited in claim ~~42~~ 1 wherein said function is a combination of entropy and adjacency.

Claim 6. (previously presented)   A method as recited in claim ~~42~~ 1 wherein said combination is linear.

Claim 7. (currently amended) A method as recited in claim ~~42~~ 1 wherein the designated variable ~~may~~ simultaneously ~~comprises~~ comprise a plurality of values.

Claim 8. (previously presented)   A method as recited in claim ~~42~~ 1 wherein the designated variable corresponds to a designated DNA locus.

Claim 9. (previously presented)   A method as recited in claim ~~42~~ 1 wherein the data records are applicable to agriculture.

Claim 10. (previously presented) A method as recited in claim ~~42~~ 1 wherein the data records are applicable to forensic science.

Claim 11. (previously presented)   A method as recited in claim ~~54~~ 10 where the forensic science application includes DNA analysis.

Claim 12. (previously presented)   A method as recited in claim 4̶2̶ 1 wherein the data records are applicable to space science.

Claim 13. (previously presented)   A method as recited in claim 4̶2̶ 1 wherein the data records comprise references to textual information.

Claim 14. (previously presented)   A method as recited in claim 4̶2̶ 1 wherein the value of the function is minimized.

Claim 15. (currently amended)   A method of partitioning data records in a computer into groups of approximately equal size, comprising the steps of:

    (a) defining a function of a distribution of t̶h̶e̶ values of a designated variable associated with the data records, wherein the function comprises a combination of measures of entropy and adjacency, adjacency being weighted by a weighting factor;

    (b) partitioning the values of a̶ the designated variable into two or more groups, wherein t̶h̶e̶ a value of the function is determined by applying an optimization procedure; and

    (c) assigning e̶a̶c̶h̶ a data record to a group according to the v̶a̶l̶u̶e̶ values of the designated variable.

Claim 16. (previously presented)   A method as recited in claim 5̶6̶ 15 further comprising the step of selecting a partition from many computed solutions yielding acceptable performance.

Claim 17. (previously presented)   A method as recited in claim 5̶6̶ 15 wherein said optimization procedure results in an optimal assignment.

Claim 18. (previously presented)   A method as recited in claim 5̶6̶ 15 wherein said combination is linear.

Claim 19. (currently amended)   A method as recited in claim ~~16~~ 15 wherein the designated variable ~~may~~ simultaneously comprises ~~comprise~~ a plurality of values.

Claim 20. (previously presented)   A method as recited in claim ~~16~~ 15 wherein the data records are applicable to forensic science.

Claim 21. (previously presented)   A method as recited in claim ~~16~~ 15 wherein the designated variable corresponds to a designated DNA locus.

Claim 22. (previously presented)   A method as recited in claim ~~16~~ 15 wherein the data records are applicable to agriculture.

Claim 23. (previously presented)   A method as recited in claim ~~16~~ 15 wherein the data records are applicable to space science.

Claim 24. (currently amended)   A method of partitioning ~~data for a~~ data records ~~for~~ of a database in a computer, wherein the database is indexed using a tree of nodes, wherein the tree of nodes comprises a root node which is connected to two or more branches originating at the root node, wherein each branch terminates at a node, wherein each node other than the root node ~~may be~~ is a non-terminal node or a leaf node, wherein each non-terminal node is connected to two or more branches originating at the non-terminal node and terminating at a node, wherein the tree-structured index comprises one or more tests associated with each non-terminal node, said method comprising the steps of:

    (a)   identifying naturally occurring sets of clusters in the data records of the database;

    (b)   defining for each identified set of clusters a ~~test~~ query that evaluates one of a Boolean expression or a decision tree and ~~that~~ assigns each data record within the set of clusters; and

    (c)   associating each ~~test~~ query defined in step (b) with a non-terminal node and an associated set of clusters defined in step (a), and associating with each cluster within the set of

clusters one branch originating at the non-terminal node, said branch forming part of one or more paths leading to leaf nodes comprising the data records assigned to the cluster by the ~~test~~ query.

Claim 25. (previously presented)   A method as recited in claim ~~65~~ 24 wherein said partitioning comprises partitioning of data records into groups of approximately equal size.

Claim 26. (currently amended)   A method as recited in claim ~~65~~ 24 wherein said ~~tests~~ queries are determined by a combination of entropy and adjacency.

Claim 27. (previously presented)   A method as recited in claim ~~67~~ 26 wherein said combination is linear.

Claim 28. (previously presented)   A method as recited in claim ~~65~~ 24 wherein the data corresponds to DNA.

Claim 29. (previously presented)   A method as recited in claim ~~65~~ 24 wherein the database is applicable to agriculture.

Claim 30. (previously presented)   A method as recited in claim ~~65~~ 24 wherein the database is applicable to forensic science.

Claim 31. (previously presented)   A method as recited in claim ~~65~~ 24 wherein the database is applicable to space science.

Please add the following new claims:

Claim 32.   (New) A method as recited in claim ~~65~~ 24 comprising creating a tree-structured index for a database of a computer.

Claim 33.   (New) A method as recited in claim ~~65~~ 24 comprising defining a partition of data records of the database using entropy/adjacency partition assignment.

Claim 34.   (New) A method as recited in claim ~~65~~ 24, both data clustering and entropy-adjacency partitioning being used in the same tree of nodes.